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READING

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FEATURE ARTICLES

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The Elementary English Review

C. C. Certain, *Editor*

The Course of Study in
Elementary School
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Grammar
Essentials of Speech
and Writing
Standard Tests
Test Procedures and
Remedial Drills

Table of Contents

Growth in Reading in an Integrated Curriculum

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A READING PROGRAM should make provision for vitalizing reading activities and promoting continuous growth in the reading ability of every child. Such a program can be carried on easily through an integrated curriculum; but in order to understand its operation, the term "integration" must be clarified.

The integrated curriculum, as developed in Houston, Texas, is based on the philosophy which defines education as "creative grappling with the situations which the world continually puts before us."[1] The individual must and does act in response to the problems or situations with which he is faced. It is the task of education to set up its program in such a way that the child may and will develop the ability to consider intelligently and face courageously certain life problems,

*Address given before the joint meeting of The National Conference on Research in English and the Department of Classroom Teachers, February 27, 1939, in Cleveland, Ohio. The general theme of the program was "Vitalizing and promoting growth in reading on the part of all the pupils."

[1] "Reconstructed Theory of Education" by William H. Kilpatrick. *Teachers College Record*, March, 1931, p. 544.

and will acquire some skill in finding possible solutions. Also, he must become aware of the social effects of his conduct.

With respect to the learning process itself, the following assumptions are accepted as basic to an integrative curriculum: (1) to be vital, learning should challenge the interests of the whole child; (2) to achieve most satisfactory results, learning must help create and satisfy worthy desires, both social and individual, and must extend and enrich personal development; (3) to be effective, learning must result in continuous and harmonious development of the child's ability to grapple with life situations with ascending degree of control and satisfaction. To achieve these results, however, education must provide the child with proper guidance in order that he may develop habits of judging wisely in the selection of certain elements of the learning situation and in the rejection of others.

Furthermore, integrative learning is effective only as it affects human conduct;

therefore, the integrated curriculum functions best as it stimulates integrative learning through selected fields of experiences. Thus, by using his five senses and extending his experiences by means of language, the child (or the adult) is able to participate in certain social activities resulting in better control of his environment and more effective means for co-operating with his fellows.

How the language arts function in the integrated curriculum.

In consonance with the philosophy on which the integrated curriculum is based, the language arts program — of which reading is a part — is based on the vital question: "For what purposes do children (or adults) use language?" In answering this question, attention is directed to such purposes as the following:

1. *Purpose.* To get ideas.
   Activities. Extending and enriching actual experiences; observing and associating words with new experiences; talking (conversing); *reading;* listening; understanding explanations; following directions, interviewing persons who have information to give.

2. *Purpose.* To share ideas with others.
   Activities. Talking (conversing); listening; asking and answering questions; *reading;* making explanations and giving directions; making reports; writing letters; keeping records; listening to radio broadcasts, or broadcasting; writing articles for the school paper.

3. *Purpose.* To influence others.
   Activities. Making speeches; persuading; convincing; *reading;* writing letters; writing editorials for the school paper.

4. *Purpose.* To secure group co-operation.
   Activities. Discussing; planning; organizing for work in committees or in clubs; making records and *reading* them.

5. *Purpose.* To solve problems.
   Activities. Recognizing the problem; deciding upon possible ways for solving the problem; taking the steps needed for solving the problem (including *reading* for information, taking notes, organizing ideas, evaluating data, forming conclusions); making application of new experiences acquired as a result of solving the problem.

6. *Purpose.* To get pleasure; to give pleasure to others.
   Activities. *Reading* and enjoying stories or poems or plays; telling or writing stories; memorizing poems; expressing ideas in verse; engaging in dramatic play; taking part in dramatizations or enjoying plays produced by others; having puppet shows; taking part in choral speaking; enjoying rhythms.

Keeping in mind the purposes for which language is used, the teacher raises the question, "What specific skills does the child need at his particular grade or ability level?" In answering this question, attention may be directed to such skills as the following, which are continuous from kindergarten through senior high school and beyond; (1) associating words with experiences; (2) reading; (3) organizing ideas; (4) using books and library helps; (5) thinking in terms of sentences; (6) using appropriate words and correct word forms; (7) observing conventions ordinarily accepted in speaking; (8) observing conventions ordinarily accepted in writing.

As a result of considering the so-called skills program in this way, teachers come to think in terms of "grade emphases" and a continuously developing language arts program, instead of attempting to set up "minimum essentials for mastery" at each grade or ability level.

The place of reading in the integrative program.

The language arts must be regarded as integrating factors in any school program, no matter how formal, since the child talks and reads and writes every day in every classroom. The integrative program differs from the more formal subject-matter program in that it does not segregate the language arts in special periods to be known as a "reading period," "a language period," "a spelling period," and "a handwriting period." In the integrative program, every period in which the child reads becomes a period for teaching him to read what he needs to read. Reading in the integrative curriculum is, therefore, both inter and intra-related to most classroom learning situations. In other words, reading is integrated with the whole program of school activities; and conversely, the whole school program is integrated with reading.

How to help the child attain his reading objectives.

The teacher who works in the integrative program thinks in terms of children —not subjects. Such a teacher recognizes two major objectives for which the child reads: (1) He reads to get specific information and to increase his understanding and his power to satisfy present needs. (2) He reads for enjoyment—that is, to satisfy a natural curiosity or a personal interest. Reading must always be a process of active thinking; but unless the child has in mind a specific objective for which he reads, he is likely to drift into mere "word calling" instead of reading. Consequently, the teacher who is working in an integrative curriculum plans every reading activity in terms of some phase of the child's personal interest or his desire for specific information to be used in solving a problem he considers important at the time. Such a point of view in teaching changes both the direction and the purpose of teaching procedures. Instead of being assigned more or less extraneous materials to be read at a special "reading period," the child in the integrative program reads only those selections for the reading of which he has in mind a definite, clear-cut purpose.

Moreover, in a program in which every reading activity grows out of an experience of intrinsic interest and real moment to the child, he approaches each reading situation with an active mind and looks upon it as his own, not as an extraneous, assignment. Furthermore, because the assignment is his own, he is the more likely to hold a definite, clear-cut purpose in mind, a thing that in itself helps him organize his ideas more intelligently. Thus, through teacher guidance and direction of study procedures, the child "learns to read" at the same time he is "reading to learn." And under such conditions, reading changes from a *subject to be mastered* to an *activity for mastering one's own limitations.*

Greater emphasis on extensive reading.

Through using "units" or some other plan for organizing experiences in terms of problems to be solved, the child comes to look upon reading as an instrument of research—a means to an end, rather than an end in itself. Even in the kindergarten, the child engages in research of a kind, although his research is confined largely to the reading of pictures, rather than the reading of printed words. With this greater emphasis on extensive reading, there has come a demand for a greater variety of reading materials. For example, where the child in the formal program may read in a perfunctory manner only one or two basal textbooks in a grade, that same child in the integrated curriculum, which provides special motivation and special desires, will read with understanding many books, thereby receiving training and practice in the selection of reading materials to meet his purposes. Furthermore, as the demand for a wider range of reading materials increases, library facilities tend to increase, and the unified and selected library comes into use.

Continuous program extending into junior and senior high schools.

As a result of the increasingly important part that reading plays in our everyday living, greater interest is being shown today in the development of a continuous program of directed reading and study extending through junior and senior high school. It has been found that departmentalization of teaching offers no handicap to the integrative program for the language arts; and consequently, many of the same procedures that are used in the elementary school may be carried over into the high school with good re-

sults, provided that every teacher of every subject is willing to accept the responsibility for teaching pupils to read whatever materials are needed in his own subject.

Caring for individual differences in children.

In order to bring about satisfactory achievement in reading at any grade or ability level, it is necessary for the reading materials to be adjusted to the needs of individual children within the group. Unless the child can experience a reasonable amount of success and satisfaction as a result of his reading efforts, he cannot be expected to read with understanding and pleasure. In most schools, standardized tests afford the teacher objective measurements of each child's reading level as compared with the reading level of other members of his group. On the basis of such tests, together with a careful evaluation of teachers' observations, children are grouped roughly in accordance with their reading ability. In addition to this rough grouping, however, there are likely to be at least thee or more reading groups in any one room. Therefore, in the development of any one unit of work, activities are adjusted to the fast-learning, as well as to the slow-learning pupils. For example, in one second grade where the children were studying about the farm and its animals, the teacher conducted the following reading activities. After having completed the reading of the social studies materials bearing on the problem they were discussing, the teacher suggested that they turn to their readers to find interesting stories about useful animals. The fast-learning group read *Pelle's New Suit* to find out who made the suit and what kind of boy Pelle was. The children then read the selection silently, finding answers to a number of thought-provoking questions

prepared by the teacher. At the same time, the middle group were reading *Mexican Town,* a story written in much simpler language than *Pelle's New Suit.* As with the better group, one main question provided the "drive" for the reading and a number of minor questions called attention to specific items.

While the two stronger reading groups were reading independently, the teacher took up a very simple story called *Eliza Ann's Ride* with a small group of the slowest readers. Using pictures to arouse interest in this story of a horse, the teacher directed the reading of this slow group, using specific questions, the answering of which called for the reading of only one or two sentences at a time. Following the reading, the teacher gave this group sufficient practice in word sounds and in word recognition to enable them to find easily the words they needed in answer to such questions as "What word tells the color of Eliza's dress?" Finally, after having made sure that no word difficulties would interfere with the children's pleasure in reading the story, the teacher left them to read the story independently to find the answer to certain questions which had not been brought out in the group reading and study.

Reading in an integrative curriculum is not confined to problem-solving situations. It is the child—not the subjects—toward which the integration is directed. Therefore, in order to provide a truly integrative curriculum, ample provision is made for recreational and inspirational reading in accord with the principles of learning stated at the beginning of this article. In other words, the program for recreational reading is planned so that every reading situation grows out of a real need or desire of which the child is conscious—a desire that may be conceived, however, in terms of satisfying

The Validity and Reliability of Adult Vocabulary Lists[*]

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THE LONG LIST of studies reviewed by your committee[1] gives impressive evidence of the enormous amount of word counting which has been carried on during the last twenty-five years. Even if one considered only the more extensive studies for which frequencies have been kept, the total running words counted is now well over twenty million. For no other aspect of education are the existing data so extensive or so complete. It now seems desirable to take stock of our resources in order to determine whether we need more data of the same kind, more data of other kinds, or a different interpretation of what we have.

There are many explanations for the prodigious amount of work which has been done in this field. The long-recognized importance of the problems of vocabulary is only a partial explanation. In the effort to use scientific approaches to educational problems, it was natural that research workers should attack problems which appeared to have a high degree of objectivity. The investigation of the nature and extent of vocabularies appeared to offer very attractive possibilities. In addition to being objective, moveover, the tabulation of words is based on counting, which is the simplest type of quantitative investigation.

The objectivity and simplicity of the

task, however, is somewhat illusory. The investigator of vocabularies cannot regard words merely as curious marks on the page or curious vocal sounds. Words stand for meanings, and these meanings are related to the total experience, no matter how lacking in system that experience may be. A knowledge of the history of a language, an understanding of its structure, and an appreciation of its function in preserving, disseminating, and extending culture would seem to be basic requirements for the research worker in the field of vocabularies. In addition to these background requirements, investigations of vocabulary must be guided by clearly defined hypotheses and must procure valid and reliable evidence pertaining to these hypotheses. The mere extensiveness of an investigation is no evidence of its worth, for inadequate hypotheses, improper sampling, faulty tabulation, poor organization, and unwarranted interpretations may make the worth of even an extensive investigation approach the zero point.

This discussion will be limited to the evaluation of adult vocabulary lists. There are obviously many other important vocabulary problems, such as (a) the relation of vocabulary to intelligence, (b) its relation to reading ability, to writing ability, and to thought, and (c) the relation of adult vocabularies to those of children.

It is important to have a clear understanding of the significance of adult and child vocabulary lists. Studies of adult

vocabularies deal with the end point of instruction. Those of the vocabularies of children may deal either with the present vocabulary needs or with the present vocabulary status of children. No matter how valid and reliable the counts of children's vocabularies may become, they are not valid measures of adult needs, and no matter how valid and reliable the data on adult vocabularies may be, they are not valid measures of the present vocabulary status or needs of children.

The appraisal of any vocabulary list must establish some criteria by which the evaluations may be made. The criterion most often used is gross frequency. Yet there is no such thing as frequency per se. In all investigations, words are sampled on the basis of some hypotheses which immediately operate to select and weight some words as over against other words. Nevertheless, if these qualifications are kept in mind, gross frequency becomes a useful criterion. In other words, the first thousand words in *The Teacher's Word Book* or in the *Basic Writing Vocabulary* are certain to be more important than are words in the tenth thousand.

There are other criteria, however, by which the criterion of gross frequency should be supplemented and indeed at times corrected. Among the most important of these are: (1) the distribution of use in each part of a cross section of the population, (2) spread into the various activities of life to which vocabulary pertains, (3) geographical distribution, (4) the quality of the words, (5) their cruciality, and (6) their permanency. To these should be added the criterion of difficulty if the words of the vocabulary list are to be appraised in relation to instruction.

Time permits a discussion of only three of these criteria: spread into the various activities of life to which the vocabulary pertains, geographical distribution, and permanency.

Spread.

The criterion of spread is especially important. Other things being equal, a word which is used in all important types of writing takes on a significance that cannot be attached to a word that is used only in a single type of writing. In a similar way, a word that is found in each of the principal types of reading matter attains a significance not possessed by words met only in medical literature. This criterion, however, assumes a proper distribution of sampling. If important areas are not sampled, or if the sampling from one or more areas is more extensive than the relative importance of that area would warrant, the validity of the resulting data are adversely affected. No statistical treatment will compensate for these shortcomings.

The nature of the sources sampled and the proportion of words sampled from each source will be reflected in the data. But the rank of all words is not equally affected. In my own investigation, for example, approximately 30 per cent of the total number of running words are taken from business letters. Several persons have criticized the inclusion of so large an amount of business correspondence. I could not then determine, and I do not now know, whether this proportion is too large or too small, as measured by the proportion which such letters constitute either of first-class mail or of the material written by the average person. From the point of view of penalties attached to misspellings in various types of writing, it is probably too small.

The counts from these business letters caused a few words to be placed among the first 5000 which would not othewise have been included there. For example, *shortage, storage, specifications, destina-*

tion, cancellation, and *compliance* would all be eliminated from the 5000-word list if the counts from business letters were disregarded. On the other hand, *commission, delivery, discount,* and *order* would appear in the first 5000 words even without their credits for business letters. The word *order* would appear among the first 500 words of highest frequency without the credits from business. It is also in the first 500 of the Thorndike list. Kaeding found *Ordnung* to be the second commonest noun in the language, and *Ordnung* is not the word for a business order.

Words like *the, and, to, we, you, was, get, time,* and *order* are so universally used that their credits are little affected by the nature of the sources taken. In fact most of the words now listed among the 5000 of highest frequency in the *Basic Writing Vocabulary* have their credits spread among a great many sources. It seems unlikely that many of them would be pushed beyond the 5000 limit by additional counts, so long as the samplings were fairly representative of the principal types of adult writing. Many of the words of lower frequency, however, and particularly those beyond the eighth thousand, would undoubtedly be displaced by better and more extensive samplings.

The question of disproportionate sampling has also been raised in criticisms of Thorndike's *Teacher's Word Book.* The credits for the first 5000 words are based almost entirely on the counts made in the preparation of his original 10,000 word list. Approximately three million of the total of five million words tabulated come from the Bible and other literary classics. It is to be expected that the rank of the 5000 words of highest credits should be influenced by the heavy samplings from these sources.

Yet, as in the case of my own investigation, the rank of all words is not equally affected by the credits from one large class of sources. The relative position of the first 100 words, for example, would be changed but little by an equally extensive count from books, magazines, and newspapers sampled in proportion to their use or importance in general reading. Other words, however, now listed among the first 5000 undoubtedly owe their place chiefly to the credits taken from the Bible or from other classical literature. Among such words are *anon* (5b), *canst* (3a), *chariot* (3b), *doth* (3a), *elf* (5a), *knave* (4a), *methinks* (5b), *ourself* (3b), *scepter* (4b), *smite* (4b), *swine* (5a), *tortoise* (5a), *urn* (4b), *vale* (3b), *wert* (4b) and *ye* (2b).

I have not seen Professor Thorndike's original tables, but it seems certain from his methods of negative weighting that the credits for most of the first 5000 words must be widely distributed. For this and other reasons, it seems probable that the position of most of these words would be little changed by extensive samplings of the books and periodicals most commonly read today.

Naturally the position of words of lower frequency, as Professor Thorndike points out, is not so reliably determined. Indeed, it seems to me that Professor Thorndike's methods of tabulation and of assigning credit probably operate to undervalue the most common words and to overvalue the rarer words.

The statistical technique which is used to estimate the probable displacement of words in the *Teacher's Word Book,* when additional counts are made, seems to hold only if identical or highly similar sources are sampled. If different sources are sampled or the same sources in different amounts, I suspect that the amount of displacement in all frequency groups

beyond the first five thousand words would be much greater than Professor Thorndike estimates.

Yet, the *Teacher's Word Book* does contain, in my judgment, most of the twenty thousand words most often found in reading. It is certainly superior, even in the case of the twentieth thousand, to any list that could be made on the basis of judgment.

The spread of a word among the counts made from a large number of different samplings appears to afford very substantial evidence of the value of that word. The wide spreading of high frequency words among the lists sampled from various sources is very clear in my own investigation, and I am sure that this same phenomenon appears in Professor Thorndike's tabulation. As a matter of fact, both Thorndike and I weighted our credits in favor of spread, although by different methods.

Additional evidence of spread is shown also by a comparison of the words in the *Basic Writing Vocabulary* with those in *The Teacher's Word Book*. In comparing the words of the two lists, however, it must be kept in mind that proper names were not recorded in tabulating the words for the *Basic Writing Vocabulary*. Indeed it would have been foolishly wasteful to have tabulated proper names, since the names of persons and places most likely to be written are easily available. Every one of the 500 words of greatest frequency in the *Basic Writing Vocabulary* and all but 170 of the first 5000 of that list are found in the original edition of *The Teacher's Word Book*, either in the same form or in a base form from which they can be built up by adding suffixes not reported separately by Thorndike.

For purposes of a more adequate comparison, the words of the *Basic Writing Vocabulary* were retabulated, scoring, as in the Thorndike list, the derived forms under base words, thus making the two lists more comparable. In spite of the fact that I did not record proper names, 3669 of the first 5000 words of my list as retabulated are also in the first 5000 of the Thorndike list, and many more are in the next two or three thousand. At first thought this amount of overlap may seem remarkable considering the great divergence in the materials sampled in the two investigations and the important differences in methods of tabulation. Yet it is not so remarkable when one considers the degree to which certain basic meanings permeate all language expression.

There is another type of evidence which shows that we have gone a long way in our effort to determine the fundamental vocabulary needs of adults. This is the evidence obtained by comparing the vocabularies of various languages. In spite of the differences in the structure of the German, French, and English languages, and in spite of obvious difficulties in translation, there are striking agreements between the relative frequencies of the words in one language and the words which express the same meaning in another language. For example, *time* is the commonest noun in the written vocabulary in English and *Zeit* is the commonest noun in German.

In 1923, before any vocabulary counts were available for the French language, I attempted, with the co-operation of Dr. Charles Ward, to forecast what would be found by such counts. We proceeded on the assumption that the fundamental meanings to be symbolized by words in English should correspond very closely to the fundamental meanings to be symbolized by words in French. We were at once confronted with the

problem of semantic varieties. Neither in Thorndike's investigation nor in my own were these semantic varieties recorded. It was therefore necessary for us to use our judgment as to the various meanings for each word in English, as well as to make a decision as to which of several words in French should be chosen to represent any given meaning. Nevertheless, the hypothetical list which we made rather hurriedly showed a remarkable correspondence to the actual list published as a result of Vander Beke's actual count. Of the first 500 words in Vander Beke's list, 289 are in the first 500 of the hypothetical list, 112 in the second 500, and 49 in the second thousand. In other words, given a leeway of three 500-word groups, we forecast 450 of the first 500 words of his list; 818 of the words which we assigned to the first thousand are among the first 3000 of the Vander Beke list.

In spite of the fallibility of translations, due largely to the operation of semantic varieties, the close correspondence between the meanings expressed in any two languages, such as French and English, French and German, or English and German, is an impressive fact. It suggests that if an elaborate and competent comparison were made of the three languages, taking into account semantic varieties, we should obtain very valuable evidence as to core meanings in western civilization.

Geographical Distribution.

The criterion of geographical distribution is really a special case under spread. It seems reasonable to assume that a word found in the writing or reading in every geographical division has an importance not attained by words used only in one locality. Most of the extensive vocabulary investigations for which frequencies have been reported have either assumed geographical distribution or have actually done their sampling on a geographical basis. In compiling the *Basic Writing Vocabulary,* for example, personal letters were tabulated from every geographical division in the United States. Professor Joe Farrar of Louisiana State University, using the data from my original tables, found no word, peculiar to the South and used with sufficient frequency to give it importance, which could be put into a spelling course of study for the South without displacing a word used more often in the South but not peculiar to the region. Mrs. Horn's investigation of the spoken vocabulary of kindergarten children showed a negligible amount of local variations. I see no reason for believing that any great variation would be found in the vocabulary of books and magazines read in various geographical divisions. I suspect, moreover, that Dr. Knott would not think it necessary, even if practical, to make a dictionary for each of the American states. This fact of geographical spread of high frequency words is very fortunate, for it does not seem feasible to make for each locality counts which approach in extensiveness those made for the country as a whole. And even if some future counts should discover a few words whose use is peculiar to a given locality, there remains the question as to whether, because of motility of population and the danger of provincialism, such words should be substituted for those of more universal use.

Permanence.

Evidence on the permanence of a word in a language probably constitutes one of the most valuable criteria for judging the fundamental importance of the word. Indeed, the significance of modern vocabulary counts has been challenged by our educational Heracliteans

who allege that even if we discovered the words that are used today, this knowledge would be of little service to the oncoming generation because they will need new words. The only way to estimate the probable amount of change in the future is by present trends.

Some years ago I attempted to run down the age of the 5000 words of greatest frequency in the *Basic Writing Vocabulary*. The historical evidence presented in the Oxford Dictionary was used, supplemented by data obtained from the most important dictionaries published from 1578 to the present time. Of the first 5000 words in my list, all but 16 were found earlier than 1866. These 16 words are *automobile* (1895), *basketball* (1891), *blizzard* (1780-1838), *carload* (1889), *Chautauqua* (1874), *garage* (1903), *gasoline* (1871), *hello* (1883), *hike* (1872), *jazz* (1917), *movie* (1913), *peeved* (1924), *questionnaire* (1915), *radio* (1898-1914), *underwear* (1880), *weekend* (1878).

A more extensive study was made of all words beginning with the letter *a* in the list of 10,000 words. There are 694 such words. Having found the earliest dictionary record of a word, the literature of the preceding period was read in the attempt to find a still earlier use of the word. Some idea of the permanence of the language can be obtained from the following table.

TABLE I

AVERAGE AGE OF *A* WORDS
IN VARIOUS FREQUENCY GROUPS

Order of Frequency	Average Age of Earliest Form (in years)	Average Age of Earliest Identical Spelling (in years)
1-500	835	588
501-1000	570	410
1001-2001	528	379
2002-2994	490	385
2995-3997	505	394
3998-5001	469	366
9066-10,000	470	346

The data in these tables are for averages. Obviously some of the words in any group would be very much older and some very much younger than indicated.

The distribution of the *a* words according to age is shown in the following table.

TABLE II

AGE OF *A* WORDS IN 10,000. (DATA TAKEN FROM VARIOUS DICTIONARIES AND FROM SUPPLEMENTARY SOURCES)

	Earliest Occurrence of Same Word	Earliest Occurrence of Same Spelling of Word
1900-	2	4
1850-1899	23	27
1800-1849	15	24
1750-1799	17	30
1700-1749	13	31
1650-1699	27	54
1600-1649	74	121
1550-1599	73	157
1500-1549	62	79
1400-1499	85	54
1300-1399	185	83
1200-1299	54	17
1100-1199	7	3
1000-1099	19	3
900-999	14	5
-899	24	2
Total	694	694

Less than 4% of these words have come into the language since 1849, and less than 10% have come in since 1749. More of these words were in the language before 1099 than have come into the language since 1799. A more thorough investigation would probably find many of these words at a much earlier date.

It should be pointed out that, while these data provide unmistakable evidence of the age of words, they do not show the relative frequency with which words were used at the earliest recorded dates. A word may increase or decrease in relative frequency as time goes on. I have a sampling of 50,000 running words of correspondence written a hundred years ago and am now beginning more extensive sampling for the first half of the 18th century. In small samplings already made it seems clear that most words of high frequency in present usage will also

Fact Burden and Reading Difficulty*

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WE HAVE ALL spoken of some school textbooks as being "heavy" and others as being "light." By this phrase we have generally meant that some textbooks are more loaded with facts than are others. Students at all grade levels have complained that their textbooks were too heavy with facts. They have complained that there was too much for them to remember. Teachers have complained that there was too much for them to teach. The situation has been most acute at the time of examinations. And many teachers have adopted new type tests in an attempt to cover facts by the hundred.

Trying to see just what the situation really is, we have been counting the facts in content textbooks. By this we do not mean the total number of ideas which any book contains. We are thinking only of the facts that belong to the content subjects and not of any others which may be used along with them. If it is a science textbook, we are asking what is the burden of science facts in that book. If it is a health textbook, we are asking how many health facts the book contains. The same approach is used with a geography text or a history text or with a textbook in any school subject.

The question at once arises as to how one is to tell just how many facts there are on a page, in a chapter, or in a book. This is a much simpler process than one

might imagine. The question is simply "what items are there which a teacher might ask pupils to reproduce when examining them on the special subjects." For instance, if the textbook says that "New York is on Manhattan Island," there are obviously two geography facts. The teacher might ask, "Where is New York?" If the pupil answered, "On an island," he would have only part of the answer. The other part is that the island is named Manhattan. If a science book says "Heavy rainstorms, snowstorms, and high winds may cause migrating birds to drop to the ground," there are at least three facts. If the teacher asks what may cause migrating birds to drop to the ground, she would expect three items and might give only one-third credit for each one. Thus it becomes remarkably easy to measure fact burden in textbooks if we apply the criterion, "What might the teacher ask in an examination?" and then note what facts would be needed for complete answers according to this particular text.

The importance of distinguishing between ideas in a text and fact burden of a text is clearly illustrated in a recent primary book on care of pets. The book is a series of stories about a family and a kitten. It has 114 pages of text. Every page presents many ideas but few of these are facts about pets and the care of pets. Actually from the point of view of the purpose of the series, which is to teach about pets and their care, there are only 41 content facts in this book of 114

pages. In one place there is a story of seven pages, presenting many ideas but only one fact about pets, that kittens do not like water. Thus the fact burden is determined by the purpose of the book. The content facts are those which the book plans to teach and which teachers may ask for on an examination on the particular subject matter.

Our first study of fact burden was made on five sixth-grade geography texts. We chose this subject because geographies are notoriously heavy in fact burden. Because geographies are illustrated so profusely, it was necessary to adopt some standard unit for sake of comparison. This unit was a full type page, which in four of the books happened to be about the same, that is, about 600 words. This unit was used in counting for all the books, even though two books actually have larger type pages. The equivalent of ten full pages of this size was taken from the beginning of each book, a similar unit also from the middle, and a similar unit also from the end of the book. It was found that averages range from 24.3 facts per page to 48.9 facts per page. Doubtless all will agree that 40 new facts on every page is a decidedly heavy fact burden. It is no wonder that so many children do not like geography if they are expected to learn it primarily from such reading matter.

These data on the fact load in geographies led us to wonder what the situation might be in other textbooks. A modern history series was counted for history facts. The series ran from grade five to grade eight, and we found the fact burden per page to range from 10 to 13. These were history books of the story type which tried to picture the past in terms which the children could understand. From these books, very many of the dates and names which have been

common in history had been omitted. The size of page in these books is just about half that of the geographies. Thus the fact burden is 10 to 13 facts to about 300 running words. Therefore the fact burden is, for an equal amount of text, just about half the fact burden in the geography books.

Next we turned our attention to a science series and counted facts in the books intended for grades two to six. Here the science facts were found to range from 3.3 to 6.5 per page of from 125 to 250 running words. These books were therefore somewhat lighter in fact burden than histories, being about 8 facts per 300 words as against 10. Finally, we counted facts in health books for grades one and two and found them to average about 1.5 facts per page of 100 running words. These were still easier content books.

We have thus traced a progression from very heavy books to very light books, following through the subjects of geography, history, science, and health, and at the same time progressing from the sixth grade down to the first grade. This study has been only exploratory, however. We do not mean to say that most books in any one subject are heavier in fact burden than most books in any other subject. No one can state this conclusion without having pretty thoroughly covered the books in each field. We cannot say just what fact burden is characteristic of any grade level because very extensive figures would be needed for such a conclusion. Neither can we say what should be the fact burden in any one grade. Wide experimental study with materials of different fact burden will be required to get at this situation. We do hope that the figures here presented will stimulate research in all these directions so that we may know more

about how heavy, with regard to fact burden, school textbooks are or should be.

Leaving statistics, let us turn to some interesting suggestions which this tentative study has made. First, it was noted that as the books became lighter and lighter in fact burden, they came more and more to be story type material. The geographies were practically straight description and explanation. The histories contained much narrative or story type material. The science books were full of stories about children and their surroundings. The primary health books, finally, were almost entirely made up of stories about children, with health facts introduced quite incidentally. We therefore seem to have before us the hypothesis that one way to lighten fact burden is to use more and more of the story form. This seems logical, but also calls for verification. Perhaps there are also other ways of lightening fact burden. Explaining the new facts in terms of children's everyday already-known experiences may be just as effective in lightening fact burden as telling a story about it.

Second, it was very noticeable that the books with low average fact burden were uneven. Some parts were very light and some were very heavy. For instance, a fourth grade science book with an average of 4.3 facts per page has on one page 38 facts. An eighth grade history with 13.4 facts per page has on one page over 50 facts. A geography which averages 48.9 facts per page had 74 facts on one of these pages. Thus the average for a book, though useful in comparing it with other books, does not give a true picture of the book itself. There will naturally be some variation in any book, but how much variation should we expect? How far do the excessively heavy spots go in cancelling the favorable effect of the light portions? These are important questions.

Third, it might be said that heavy load of facts may not be as damaging in a book as failure to distinguish between important facts and unimportant facts. As texts are now presented, the child may find 40 facts on a page and try to memorize them all, or the teacher may try to teach them all. As every good teacher knows, one or two of these 40 may be of great importance and the others merely supplementary. The pupil cannot know which are the important facts because he is just a beginner in the field. The teacher, if she has not studied the matter, may not know either. And the book may make no distinction in the way the facts are presented. Suppose, for instance, that a certain science book has 400 pages. It contains an average of 10 facts per page or a total of 4,000 facts. Now let us suppose that only 400 of these facts are so fundamental that we may ask the child to remember them. Who is to select which 400 out of the 4,000? Obviously the author is best prepared to do this. Therefore the way the book is written or printed should clearly point out these essential facts. Topical headings do not do this because they simply point out areas of knowledge and not definite facts. It takes a sentence to state a fact. This does not mean the teacher should not use her discretion to help fit the subject to the particular class, but surely the textbook should help much more than it does now.

Finally, we must recognize that there is an additional factor beyond quantity of facts. There is also the difficulty of the facts themselves. This means their relative strangeness, or remoteness from the child's experience. Some new facts in textbooks are only partly new. Others are so remote as almost to be meaningless. Textbook illustrations attack this problem. Authors attack it by detailed description or explanation. Our experi-

ence in this study seemed to show that an author's consistent attempt to overcome strangeness of fact usually resulted in greater lightness of reading matter. When he explained the strange by means of the familiar, the new facts were surrounded by ideas that were not new at all. Therefore the fact burden per page or per 1,000 words went down.

So far, most of the research on reading difficulty has dealt with method of expression, that is, with word difficulty, sentence difficulty, and the like. All the while we have known that the problem of comprehension includes more than the mere method of expression. It necessarily includes the content of the reading matter. We have here made a tentative approach to the problem of content by a tabulation of fact burden in grade school textbooks. The great load we have discovered, both in averages for entire books and on individual pages in otherwise light books, surely indicates an important aspect of reading difficulty that needs attention. We trust that these figures will be supplemented by those of other students in this field. We suggest therefore for further study: (1) Is there an essential difference in fact burden between books in different fields? (2) Is there a suitable fact burden for books for different grades? (3) Can textbooks be made more even throughout with regard to fact burden per page? (4) Cannot textbooks clearly distinguish important facts from unimportant ones? And finally (5) what methods are best for the lightening of fact burden?

THE VALIDITY AND RELIABILITY OF ADULT VOCABULARY LISTS

appear with high frequency in correspondence written two hundred years ago.

The evidence which I have cited, and much more which could be cited, leads to the conclusion, it seems to me, that we have accumulated very dependable data on the four or five thousand words most permanently, most frequently, and most universally used by adults. And even for words far beyond these limits, we have the data which enable us to determine the relative value of words with far greater precision than is possible by methods of judgment. This does not mean that additional investigations are useless. Better and larger samplings could undoubtedly be made for both reading and writing vocabularies. Because such counts are enormously time consuming, it would be wasteful not to combine any new data with the data already in existence. I have preserved my original counts in usable, tabular form, and I presume that Professor Thorndike has done the same. I should be very glad to make my own data available to anyone who wishes to improve or to extend the counts represented in these tables.

Teaching Children To Read As They Learned To Talk*

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THE BEGINNING READING program has engaged the special attention of the staff at the Nassau School during the past eight years. Our desire is to develop an approach to reading that will induct children into this process as smoothly as they learned to talk. There is a great difference in the learning of the two skills, even though much has been done during the past thirty years to improve the reading instruction. Learning to read is for many children a difficult and frequently a distasteful experience. Even our best methods of teaching this skill appear to be very wasteful. A high proportion of the primary teacher's time is spent on it without success. A few days ago I saw a child who could not read a primer, and who had been given daily attention for three years by teachers who used the best books and material available. Ten years ago we would have poured out our sympathy for this youngster as one of our overgrown, dejected primary failures. Today this not the case, for he has been promoted each year. We have evidence that this is good practice for he can do art, social studies, music, science about as well as those members of his group who can read fluently. Furthermore, we have good evidence that if this normal child is given help in the fourth grade he probably will become a normal reader in the fifth grade.

Today, our attention must be extended to the teacher who spends so much time, particularly in the first and second grades, with children who do not respond to her instruction. For if this time were given to the teaching of health, music, and fine art, and to extending the child's experience into his environment we would have, I am sure, more fertile fields for growth.

In learning to talk, this wastefulness is not so noticeable. It is questionable whether it exists to any appreciable degree. In the average home the baby's first talk is a joyful family experience. However, it must not be overlooked that this is also a difficult experience for the child. The constant jabber of a new word is evidence of this. The child has to drill himself. This drill is pleasant, and it begets more drill. It is significant that the child himself starts and stops the drilling process. It is probably true that the ease and efficiency with which children learn to talk are due largely to the factors of self-motivation and to maturity. The home does not set up special pedagogical methods to induce the child to talk before he is ready. Parents are not disturbed at all if a child waits to begin his talking until he is twenty-four months old. Fortunately, no one has as yet found that such a delay makes a difference in one's success in later life. Thus without systematic instruction, without a vocabulary quotient to govern the repetition of words, and without a master word list made in Chicago or New York,

he yet learns to talk. Is there anyone who will say that this natural method of instruction is less efficient than the methods we have thus far devised for reading?

We do not believe that reading difficulties are due to inherent complexities of the written language. Rather, we believe that the difference between the learning of the two skills is due to the fact that the child is taught individually to talk and lives in a talking environment. It is reasonable for us to believe therefore, that if we assimilate these two factors in our reading program we shall get similar results.

There is much evidence that children of today are living in a concentrated reading environment. The average child who enters our kindergarten knows many of the nursery rhymes. He has several books in his own library, and is acquainted with many more that come from the homes of neighbors and the public library. In the kindergarten there is a very positive reading environment. The child becomes acquainted with at least one hundred new picture and story books. But perhaps his realization of the values of reading is highest when the answers to his own queries are read to him from a factual book—perhaps, an encyclopedia. Such an experience as this, we contend, is not unusual. The report of the White House Conference several years ago took note of this trend.

Specifically, what evidence have we that use can be made of this concentrated environment in teaching children to read? And furthermore, is it possible to respect the individuality of the child in our present program of education?

We have found that approximately 25 per cent of our children begin to read before the school requires regular reading instruction in December of the first grade. Perhaps one child will begin to read during the early months in the kindergarten. He is followed by others who at various times inquire from the teacher the meaning of words. By the end of the year approximately 8 per cent of the group have a small reading vocabulary. Voluntary reading is continued for three months in the first grade. During this time all chlidren are encouraged, but not forced, to read. The quarter of the children who are reading by the first of December have made a sufficient start to enable them to grow independently into the reading process with little or no help from the teacher after the first half of the first grade. Of course, this does not mean that no attention is paid to this group after this initial experience. What it does mean is that a rather general guidance of the child in a concentrated enjoyable reading environment can be substituted for regular systematic instruction. I shall give you the reading scores made during five consecutive years by two children who made such a start. I believe these children are average members of this 25 per cent.

Mary grew

    13 months the first year
    12 months the second year
    10 months the third year
    15 months the fourth year
    12 months the fifth year

At the end of Mary's fifth year in school she was more than a year ahead of her group.

John grew

    18 months the first year
    10 months the second year
    15 months the third year
    10 months the fourth year
    15 months the fifth year

Two characteristics are apparent in the reading done by these precocious children. First, the child knows how to use and does use aids for finding the meaning of words. The aid that is most frequently used is asking another person— usually the teacher. Second, he has the learning power that enables him to grasp

a symbol without an undue amount of difficulty. Without this the process of learning to read can rarely go on. We have had neurotic cases resulting where children with unusual persistance in attempting to read did not have the power to remember symbols without great difficulty.

Our observation has been that 75 per cent of our children do not acquire abilities for successful reading until after the first four months of first grade experiences. There appears to be a special period of awakening in the experience of each child. This awakening or spurt is the time when the child makes rapid strides in learning to read. Since all of our reading instruction is individualistic, we probably notice it more than if we used group methods. It is not unusual in our experience to have a child remain on the pre-primer level for a year and a half, and then advance within three months to a difficult second or an easy third reader level. This has happened so frequently that we have begun to question the advisability of forcing many of this group to read in the first and second grades.

We felt, however, that we were not justified in setting up a program that would exclude some children from reading for six months, a year, or perhaps two years until we had more refined measurements of reading progress. We reasoned that perhaps slow readers were learning more skills than we were able to observe or than our standardized tests could measure. Therefore, with the aid of the Works Progress Administration, we set up an experiment to check, monthly, the reading growth of 141 children. This was done by analyzing the child's reading. The test consisted of all new words that the child had encountered during a month. These were given until a child was able to attain a second grade reading level on one of the forms of the Metropolitan Reading Tests. The experiment was begun in the Nassau and Elmwood Schools, East Orange, in the late fall of 1937. Since the experiment is not complete I shall report to you the progress thus far made by approximately a third of the experimental group which is enrolled in the Nassau School. Of this group 22.25 per cent went smoothly into the reading process and reached second grade level in April, 1938. By January 18th, 1939, 85 per cent of the group had arrived at the second grade level. In every case thus far tested, with the possible exception of two pupils, there was a sudden rise in the number of words learned.

Below are the scores made by a number of children who did not reach second year level until the middle of the second grade. These scores represent the number of words that were known at a single testing.

TABLE I

WORDS KNOWN BY CHILDREN AS SHOWN BY PERIODIC TESTS

Cases	Tests								
	I	II	III	IV	V	VI	VII	VIII	IX
1	6	4	12	14	32	13	16	78	90
2	7	11	5	18	30	24	28	124	148
3	8	11	14	21	20	35	70	94	
4	3	10	16	42	54	43	53	234	
5	2	1	2	21	11	45	73	164	
6	9	2	18	20	13	43	25	93	
7	8	6	21	15	29	18	80	230	

These spurts will be shown more vividly in the cases that begin to read in the latter part of the second grade or in the beginning of the third grade. Thus far the experiment bears out our assumption that very little knowledge of reading is acquired by many children in the first grade.

The question that we shall have to face at the completion of this experiment is whether or not the spurt would have come as early, or if it would have come at all, without several months of what appears to be valueless instruction.

What Next in Reading?

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IN SPITE OF more than fifteen years of effort, results in reading are still far from satisfactory. The non-reader is still with us and there is ample evidence to show that hosts of other children fail to read as satisfactorily as they should. While substantial progress has been made, there are still "squeaks" in our reading procedure for which no oil has yet been found. The challenge still remains.

In this part of the world the interest in remedial reading is still on the increase. Two years ago our people were ready to make a new attack upon the problem. In casting about for a plan of campaign, the writer came across Thorndike's statement: "No child can be expected to read more rapidly than he can think." The statement was thought-provoking owing to the fact that most of our previous efforts had been directed toward increased speed of reading. Possibly we had been neglecting accuracy and speed of thinking. Preliminary investigation substantiated this hypothesis and at the same time disclosed evidence leading to the conclusion that our emphasis on speed had not only been useless, but even harmful. There are large numbers of pupils who are unable to give complete answers to comprehension questions. Another very large group persistently mispronounces words. Frequently, the first part of the word is perceived correctly while the latter part is interpreted wrongly. More convincing still is the large number of pupils who can read rapidly and fluently, but with almost total failure to comprehend what they have read. All of this evidence has forced us to conclude that many of our pupils are being driven too rapidly. Under the pressure of rigid time limitations they are unable to do more than guess at the meaning of words, sentences, and paragraphs. Our pupils are seemingly in a situation similar to those who try to swim rapidly without first perfecting their stroke. Reading without thinking seems even more futile than swimming with a poor stroke. The thing to do is to ignore speed for a while and concentrate attention upon the thought processes.

The need for vocabulary training.

A consideration of thoughtful reading leads at once to the question of vocabulary. The need for vocabulary training is also reinforced by the current theory that much of the misunderstanding of this world is due to an unsatisfactory functioning of word meanings. Many words are multi-ordinal, that is, they mean different things to different people. One has only to think of such terms as "progressive education," "communism," "co-operation," and "citizenship" to find samples of the difficulty in question. When a single word can have a multitude of meanings it is quite possible for good people to get into arguments and even come to blows without understanding each other at all. Matters are further complicated by the fact that some of our words have no adequate concepts back of them. They are nothing more than noises tinged with emotional content. Finally there is some evidence that a single concept may be partially expressed by more than one word. For example, it seems almost certain that the science of education would be better off if the

words "body" and "soul" had never come into existence. A body without a soul is a corpse, and a soul without a body is a ghost. A corpse may be educationally useful in an anatomy class, but in general neither a corpse nor a ghost is otherwise significant educationally. In short, our words and concepts do not fit as they should. For all of these reasons, studies in vocabulary seem to be the most hopeful avenue of approach to the reading problem at this time.

The need for a new attack.

Studies in vocabulary are by no means new. Much labor has been spent heretofore in their pursuit, but the results have been inadequate. Apparently, some new attack must be devised if we are to achieve further progress. It is desirable to avoid the mistakes of the past as much as possible. At the same time we are very fortunate in being able to make use of past achievements in vocabulary. Our work was directly benefited by the timely appearance of the *Combined Word List*.[1] With this list as a source it is possible to arrive at an idea of the number and character of the words which a child may be expected to learn in a given grade. In order to arrive at this information it was necessary to re-sort the words in the *Combined Word List* in terms of grade level.[2] Even so, the results are only tentative since further vocabulary studies are doubtless being made. The graded lists suffer further from the fact that a single word may represent quite different concepts. For example, consider the nouns "saw" and "mine." Each word appears with a high frequency in a number of vocabulary studies, but no information is given as to which meaning is intended. The size of the frequencies indicates that "saw"

appears only as a verb and "mine" as a pronoun. In spite of these defects the lists still yield substantial information to the teacher who wishes to know what should be the vocabulary of the pupils in her grade. Even with this information there are further difficulties to be considered. For example, children who enter the first grade are supposed to know nearly two thousand words. But how can the first grade teacher discover the vocabulary status of a given child? To present the two thousand words one after another individually is out of the question. Some other technique must be devised. The new technique must not present words in isolation. Learning unrelated words one at a time is like reading the dictionary from cover to cover. No child could find his way in such a labyrinth. The alternative is to teach words in relationship to each other.

Unfortunately we have been neglecting word relationships. We have known of them at least since Woodworth and Wells first presented them.[3] But the work of Woodworth and Wells has been strangely ignored. Much of it has been used in intelligence tests and it has appeared scatteringly in workbooks. At the same time we have deliberately tried to abandon formal grammar and Latin, our previous sources of word relationships. Consequently, whatever practice in thinking children have received in the school has come largely through boot-leg channels. Of course, we have expected children to learn to think, but we have not provided them with an organized technique.

The technique of extensional thinking.

To facilitate the building of such a technique the words of the kindergarten level were classified into categories. The

1 Buckingham, B. R. and Dolch, E. W. *A Combined Word List*. Ginn and Company. 1936.

2 A partial list of these words is now available in mimeographed form at the University Book Store in Seattle.

3 Woodworth, R. S. and Wells, F. L. "Association Tests." *Psychological Monograph*, No. 57. 1911.

classification presented a number of difficulties and is still in incomplete form. At present, fifty-three divisions have been made out of the nouns in the Kindergarten List. The classification is not perfect since a miscellaneous category of eleven words remains. Nevertheless, it presents a picture of the structure of the kindergarten vocabulary. The number of words in each category ranges from 114 words relating to food, down to one. The identity of the categories is also constant as one proceeds upward in the grades. For example, the same categories, with one exception, are valid for the words of the twentieth thousand, but it was necessary to add eleven more, so that the classification of the twentieth thousand contains sixty-four categories with no miscellaneous list. Even in tentative form the establishment of these categories is worth while. It enables the teacher to begin with a small group of words which is suited to the interests of the child. Furthermore, it makes possible a rapid construction of vocabulary exercises in terms of word relationships. The categories also have proved useful in the discovery of pupil interests. Several of my helpers have used them in this way. Dr. Fred Couey, then a teaching fellow in the University of Washington, presented the samples of each category to a large number of pupils in the John Marshall Junior High School of Seattle. The pupils were asked to select a category in which they were most interested and write as many more words as they could think of which belonged to that category. The results were of course indicative of the interests of the pupils who participated. Mrs. Ruth Mulver of the Riverside School made a similar presentation. A few days later a young Japanese boy came in with 411 names of animals. Surely, there is little doubt as to where the interest of that boy lies. With proper educational guidance he should go far as a biologist or taxidermist. Dr. Couey stimulated the thinking of his pupils by asking them, in addition to naming the persons, animals, or things belonging to the chosen category, to tell what each does, what we do to each, and list the adjectives which describe each. After he had selected his category, Mrs. Mulver simply asked her boy to name all of the animals he could think of.

Practice in abstracting.

The chief approach to vocabulary teaching that we have used so far is that of abstraction. Two or more words sustaining a given relationship have been presented together with one word that does not belong. Then the pupils were asked to cross out the word that did not belong. In the beginning, practice was given on each type. A partial list of types as used with pupils of the first grade follows:

Classification	ball	girl	mother
Noun-adjective	rain	ripe	cold
Subject-verb	moo	cow	chicken
Verb-object	sing	draw	house
Genus-species	milk	ball	toy
Part-whole	flower	newspaper	bouquet
Materials	brick	juice	clay

In each case the pupils were asked to cross out the word that did not belong, and tell why they did so. The activity of giving a reason for each particular abstraction proved particularly valuable as a language exercise. In a number of cases different abstractions were possible. This always lead to an animated class discussion in which each pupil was encouraged to develop his point of view and no pupil was marked wrong unless he was unable to provide a logical reason for his choice.

Mr. W. T. Foster of the Campbell Hill School started with the omnibus form from the very beginning. Both he and Dr. Couey have developed a large number of relationships other than the

ones which have been listed. A number of other teachers have used similar devices for developing vocabulary and extensional thinking in terms of specific subjects. All report great interest on the part of their pupils. The pupils of Mr. Foster's school came early each morning and insisted upon doing their vocabulary exercises even before they started to play. Each teacher reports that a number of pupils wanted to try their hands at making the exercises for themselves. One teacher, Mrs. Laura M. Corliss of the Mason Junior High School, used the technique as a class project. That is, the class had the entire responsibility. Some pupils would make exercises and others would answer them. Samples of their productions follow:

> Red, orange, yellow, green, blue, violet, *pink;* because pink is not a prismatic color.
> Petroleum, parafin, *turmoil,* oil, kerosene; because the others are either oil or its by-products.
> 0, 3, 7, 12, 18, 20; because 20 is the only number without an increase of one over the preceding interval.

It seems quite obvious that the children who engage in activities such as the preceding are thinking and increasing their vocabularies. The teachers report a rush for the dictionary when the list contains an unknown word. Pupil interest is universal. The procedure sometimes involves surprises for the teacher. For example, Mr. Foster reports this one: Maine, California, Ohio, Washington, Florida. He expected *Ohio* to be crossed out because the remaining states lie on the border of our country. But the slowest pupil in his class marked out Maine. When the teacher asked him for the reason, the boy replied, "Maine is the only one that went Republican." And Mr. Foster is a Republican!

Results.

The program has not continued far enough to speak with certainty with reference to results. Mr. Foster conducted a two-year remedial program consisting mostly of vocabulary training. At the close of the period the pupils of his school averaged more than two years in advance of the reading norms as given by the Unit Scale Test. The poorest was one year in advance of the norm, and the two best ones were three and a half years in advance. While we are not able to ascertain the exact contribution made by the vocabulary training, it seems likely that it played a major role in the results obtained. One incident of the program is of particular interest. In the beginning, the school included a colored girl sixteen years of age, chronologically, with a mental age of ten as measured by the Otis Classification test. A year later both the Kuhlman Anderson and Otis Classification tests showed that her intelligence quotient was in the neighborhood of 96. This incident did not impress us much at the time. The girl was just graduating from the elementary school and we expected to hear no more from her. A year later, much to our surprise, we discovered that she was attending high school and achieving grades of B and C. She was making B's, for example, in French, a language with which she had not been familiar. There are of course a number of explanations for such a situation, but the influence of the vocabulary training seemed the most likely one. In order to check upon this inference, Mr. Foster then instituted a seventy-day period of intensive training in abstracting words in order to see if a similar improvement would occur in the mental ages of other pupils. The results showed that the pupils made an average increase in I. Q. of two-tenths of a point as measured by the Kuhlman Anderson Test. The number of pupils involved was only 21 so that it did not seem worthwhile to find the coefficient of reliability. Mr. Foster also gave the McCall Intelligence Test

before and after the seventy-day period of vocabulary training. The results are shown in Table I.

TABLE I
CHRONOLOGICAL AGES AND MENTAL AGES OF TWENTY-ONE PUPILS BEFORE AND AFTER TRAINING IN ABSTRACTING

Pupil	C. A. (after) yr. mo.	M. A. (before) yr. mo.	M. A. (after) yr. mo.
H. L.	13-10	13-5	22-3
C. O.	12-11	12-4	12-6
B. F.	10-8	13-1	16-0
M. O.	10-7	11-5	13-7
E. A.	13-5	14-8	29-3
W. L.	9-11	9-4	13-9
R. C.	12-6	14-8	23-3
Y. O.	10-7	11-0	15-6
L. J.	15-1	15-6	22-3
R. J.	13-11	17-0	22-3
A. A.	11-7	10-7	14-7
K. K.	14-3	11-5	16-0
B. F.	13-9	17-7	28-2
D. Z.	11-10	9-6	11-4
D. B.	11-10	10-0	13-7
J. S.	14-0	10-7	13-7
B. D.	9-3	9-3	11-5
B. W.	11-5	10-5	13-2
F. B.	15-3	12-6	
V. B.	11-5	12-3	15-0
R. K.	9-11	6-7	10-9

Unfortunately a rigorous interpretation of the results in Table I is impossible because the McCall Intelligence Test has no equivalent form. We were not aware of this fact until the close of the experiment. Under the circumstances we were compelled to give the same test over again. Our disappointment was somewhat mitigated by the fact that the pupils had no contact with any of the test elements during the interim. As a further test, the McCall Multi-mental Scale was given. The Multi-mental yielded results which averaged almost the same as those in Table I in the column headed M. A. (after).

It seems, therefore, that the results in Table I are likely to be genuine in spite of the tremendous gain shown by some of the pupils. We have no general measure of the amount of improvement in reading which took place during the seventy-day period covered by Table I. We know, however, that one pupil increased her reading achievement four years during that interval.

All of this improvement was achieved in a schoolroom that contained five grades. This fact indicates that the program is possible even under adverse circumstances. Most of the children came from English speaking homes, but three of them were Japanese (C.O.,M.O.,Y.O.) who had had somewhat meager experience. One pupil (L. J.) was a negro.

Dr. Couey used the technique to ascertain the amount of improvement which could be obtained through practice. He conducted his training for a minimum period of seventeen school days. He secured an amount of improvement which was six times its own standard error and therefore statistically significant.

With preliminary findings such as these we have been encouraged to continue our program during the coming year. Our plan involves training in both vocabulary and thought relationships. It will include an application to non-readers through the use of pictures. Reports of further results will be issued as soon as possible.

A Phonics Manual for Primary and Remedial Teachers

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FOR SOME TIME the writer has felt handicapped in his work with primary and remedial teachers because of the lack of knowledge of the factual information and psychology underlying the teaching of phonics. A number of questions have constantly occurred. Primarily these are the questions of what to teach, how to teach it, and when. Other questions raised are whether to teach phonics at all, and if we do, what may we expect. As Witty and Kopel (47)[1] say, "One finds the teaching of phonics an educational issue so involved in contradictory claims (resulting from incomplete and frequently trivial experiments) that confusion is inevitable."

The attempt to answer these questions has necessitated an intensive review of contemporary literature. The conclusions from this review are presented in the belief that they may provide a guide to the teaching of phonics. The gradual shift in general opinion of the value of phonics from that of acceptance as a distinct method of teaching reading to the present use as a supplement to other methods has demonstrated that a group of conclusions is likely to have only temporary significance.

Purposes of Phonics Teaching.

The purposes and outcomes of a program in the teaching of phonics have been summarized thus in the *Twenty-fourth Yearbook* of the National Society for the Study of Education: (1) Knowledge of a number of phonetic elements.

[1]Parenthetical numbers refer the bibliography, pages 149, 150, 156.

(2) Use of these elements in actual reading situations. (3) Accurate pronunciation and enunciation as well as ready recognition. (4) The habit of seeing a word as a unit made up of known parts. (5) The habit of attacking an unknown word and working it out independently.

Another purpose mentioned in the courses of study of various states and cities, as reviewed by Elsa Lohmann (25), is implied in the statement that the teaching of phonics aids in the teaching of spelling.

Extent of Phonics Teaching.

In 1925, Gates (20) found that every one of the twenty-one most widely used systems for the teaching of reading employed some phonics. In seventeen of the series of readers, phonetic cards and other materials were supplied; in the rest instructions for the preparation of such materials were given. As Gates (16) says, "On the whole, it is fair to say that phonetic training was in 1926 one of the major concerns of the authors of primary reading courses, and, as a consequence, the development of phonetic skill probably became a major concern of primary teachers." Elsa Lohmann (25) similarly found that all of the courses of study of thirty-one states and cities included some phonics teaching.

Other evidence of the wide usage of some teaching of phonics may be found in its inclusion in various systems of diagnostic and remedial work. The child's ability in phonetic analysis is considered in the diagnostic system of the Gates Read-

ing Diagnosis Tests (17), the Monroe Diagnostic Reading Tests (26), the Durrell Analysis of Reading Difficulty (12) and others. Work in phonics is included in the remedial programs outlined by Marian Monroe (27) Durrell (12) Gray (22), Gillingham and Stillman (21) and Gates (18) as well as the earlier programs of Schmitt (35) and Hinshelwood (23).

Reed's study of promotion standards (31) indicates that in 1927 the average school expected a child to know 25 phonograms and 15 phonetic families at the end of the first half of the first grade. Twenty-six more phonograms and 30 more phonetic families were required at the end of the second half. Some schools required as many as 62 phonograms and 40 families in the first half, and up to 150 phonograms and 90 phonetic families in the second half.

Results of Phonics Teaching.

Gates (16) conducted two experiments contrasting the teaching of reading by the phonetic and intrinsic methods. His results indicated that the group taught by the phonetic method did not evidence any superiority in those habits that such a method is supposed to engender. At the end of the experiments the groups were equal in knowledge of phonetic elements, ready recognition of words, pronunciation, and oral reading. Those taught by the intrinsic method were superior in silent reading comprehension.

The chief difference in the results of the two methods of teaching appeared to be the habits of word-attack established in the pupils. Gates's tests indicated that the children taught by the phonetic method acquired the habit of centering their attention upon the smaller details of words, especially one and two-letter phonetic elements. Those taught by the intrinsic method acquired the habit of

perceiving the characteristics of the total configuration of the word, noting large word units, syllables and the larger phonograms.

Other experiments (7, 8) seem to indicate that phonics teaching is conducive to painstaking, slow reading with consequent loss of interest and comprehension on the part of the child. Even though he found that phonics teaching gave superior results in developing the abilities to recognize words and comprehend sentences and paragraphs, Tate (36) noted that it also made some of the children "word-conscious." They often stopped to sound a word that ordinarily would have come easily if perceived with less concern.

If these results may be taken as representative of those obtained from the teaching of phonics when it is the only method employed, we may seriously question the value of such teaching. Any method fostering minute phonetic analysis or letter-by-letter reading cannot be expected to achieve present-day aims of the teaching of reading.

However, these results do not disprove the belief that the teaching of phonics may prove desirable as a supplement to other methods. Having established a basic sight vocabulary, it is highly desirable to aid the child in acquiring methods of word-analysis for attack upon new words. If this method of word-analysis does not produce results contrary to the general aims of rapid word recognition and thought-getting, it is a desirable method. The writer will attempt to outline the methods by which the teaching of phonics may be employed without producing undesirable habits.

Arguments Against Phonics Teaching.

Some of the arguments cited against the teaching of phonics are:

1. The English language is relatively non-phonetic, hence the various sounds of the vowels and consonants are too numerous for generalization or application to a basic vocabulary.

2. There is no advantage in using the phonetic method of teaching since other methods engender the same habits and give superior reading comprehension.

3. The teaching of phonics is wasteful of time and effort when measured in terms of pupil achievement.

4. The teaching of phonics sets up undesirable habits of word-analysis.

5. The teaching of phonics engenders painstakingly slow, unenthusiastic reading.

Both Burbank (4) and Osburn (30) have found that approximately 86 per cent of the monosyllables or words of English are phonetic, i.e., they are spelled as they are pronounced or pronounced as they are spelled. Gates (16) makes the point that although many words may be phonetic, according to Burbank's definition of the term, most of our letters have several different sounds. It is possible to represent our thirteen vowel sounds in 104 ways. Similarly, two-letter combinations are pronounced differently in many words. It is his opinion that these variations make it almost worthless to attempt to secure skill in word recognition by the method of teaching specific phonograms as key words to unlock new words.

The solution to this conflicting evidence, in the writer's opinion, lies in the fact that, although one and two-letter combinations may have a number of pronunications, this is less true of three and four-letter combinations. The tabulation of all the two, three and four-letter combinations in the Gates Reading Vocabulary for Primary Grades (19) and in the 4065 words of a basic spelling list (33) indicates that the possible number of pronunciations decreases as the number of letters increases. If our teaching phonics includes only three or four-letter combinations, or the two-letter combinations with few variations, we may provide the pupil with a number of key combinations that have relatively few variants.

It is probably true that there is no superiority in the phonics method, when used as the sole method of teaching, over other methods of teaching reading. However, almost all writers, including those most critical of phonics teaching, agree that a modicum of such training is desirable. They suggest that phonics training be employed as a supplement to other methods in remedial work. As Gates (16) points out, the question is not whether we shall use phonics at all, but rather the extent and manner of presentation.

The final arguments against phonics, on the grounds that it engenders undesirable habits of word-analysis and produces slow, uninterested readers, may be answered, we believe, by more careful choice of the materials of instruction and stricter attention to relevant psychological facts and principles. In the outline of what to teach in phonics and how to teach it, which will appear in the May issue, the writer will attempt to support his suggestions by the indications of recent research and recognized principles of learning and perception.

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Selection of Reading Materials by Pupil Ability and Interest

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THE SELECTION OF reading materials for use in the classroom naturally involves the two variables of pupil and book. In discussing this problem we shall consider several of the factors which must be taken into account with each. First, in the case of the pupil, we will discuss his expected reading level, his actual reading level and his interests. Second, reading materials themselves will be considered, particularly the factors which determine the reading level needed for comprehension and the inherent interest value. Finally, there will be a brief discussion on how the above data can be used in ordinary classroom procedure.

I. PUPIL VARIABLES CONSIDERED

A. *The Expected Achievement Age of Pupils.*

Objective measurement in the classroom has led to greater stress being given to individual needs. Intelligence tests have helped teachers to secure a fairly reliable estimate of pupil learning rate. Achievement tests, particularly in reading, have shown to what degree pupils have progressed in basic skills. It is now known that in any given grade, comparatively few students will be reading at that level. If it is a more or less normal group about half will be reading above grade level, while the other fifty per cent will be reading below grade level.

At first, educators were prone to compare the reading average of a class with their grade level. This practice has been unsatisfactory except in the case of classes which average approximately 100 in intelligence quotient. Where a class is comprised of students of less than average mental ability, it is only natural that the reading level will be lower than "norm." The opposite is likewise true of students who are above the average in mental ability. Since one fixed norm cannot justifiably be used with all children, some differentiation must be based upon known variables.

In the history of the testing movement several factors have been used to help teachers predict what should be expected of a child in the way of educational achievement. The intelligence quotient has been tried, but to group all children together who have approximately the same IQ only temporarily solves the problem. This method does not take into account factors related to social and mental maturity.

Mental age or mental grade placement was found also to be insufficient as a predictive measure, except in the case of children of nearly average intelligence. For example, the achievement of bright children is usually below their mental age, while dull children ordinarily do better than their mental age. These facts do not prevent teachers from learning more about the needs of individual pupils, but from the scientific standpoint there are certain discrepancies.

Close study of the problem revealed the fact that a given pupil's achievement

in any subject usually falls between his mental age and his chronological age. Expressed in another way, we may say that pupils who have intelligence quotients above 100 usually have a reading grade placement higher than their chronological grade placement, but lower than their mental grade placement. Students under 100 IQ read on the average at a point which is higher than their mental grade placement, but lower than their chronological grade placement.

The relationship between mental age, chronological age, and pupil achievement was revealed rather clearly when the educational achievement of children was distributed by IQ and chronological age. Tables of expected achievement were prepared on the basis of the trends shown in the distributions. These tables were tried out for several years by the Educational Research and Guidance Section of the Los Angeles City Schools. Subsequently, Dr. Ellen Alice Horn worked out the mathematical formula which seems best to express the relationship between chronological age, intelligence quotient and expected achievement. This relationship, Dr. Horn has demonstrated, may be expressed mathematically as:

$$\text{X.A.} = \frac{2 \text{ M.A.} + \text{C.A.}}{3}$$

Here X.A. is the expected achievement age, M.A. is the mental age in months, and C.A. is the child's chronological age in months. Dr. Horn has prepared tables on the basis of the formula and these figures are now being used by a number of the counselors in both the elementary and secondary schools of Los Angeles city.[1]

Through such means as Expected Achievement Ages, teachers are able to estimate about where a child should be

[1] Tables of Expected Achievement Ages are given in the "Outline of Procedure for Educational Guidance in Elementary Schools, Revised January, 1939." Educational Research and Guidance Section, Los Angeles City Schools.

working in view of his age and mental ability.

B. *Actual Reading Level of Pupils.*

The actual reading level of a child is determined by a standardized reading test and may vary considerably from the Expected Achievement Age which is based upon intelligence test results and chronological age. Pupils whose reading age is higher than their XA are doing better than expectation and do not constitute a problem unless their high standing is at the expense of other educational areas. Pupils with reading ages approximately equivalent to XA can be considered as doing normal work. Students who are working considerably below their XA should be considered in need of further help. It will be seen that with each pupil his own achievement is compared with what might be expected of him, rather than with an arbitrary grade standard which at best fits but a few of any given class.

C. *Pupil Interest.*

An aspect of child nature which is being given greater study is the matter of the basic interests displayed by a pupil. These are decidedly important from the standpoint of educational guidance in the elementary and secondary school as well as having vocational significance when it is time for the student to begin considering occupational choices.

As a basis for the selection of reading materials, interests have an important role. Just as reading tests have shown how pupils of a given age vary in reading ability, so have interest inventories shown how pupils of the same age vary in basic urges and drives. Instructors can discover interests by different methods, such as pupil hobbies, free time activities, favorite movies and radio programs, and best-liked school subjects. However, from the

standpoint of more adequate analysis some sort of objective record is desirable. A blank, such as the Specific Interest Inventory by Paul Brainard, can be used with younger pupils, there being a form for both boys and girls under sixteen. The results of these blanks can be interpreted in terms of basic preferences and natural urges. With this knowledge at hand the instructor is far better prepared to understand the particular interests which motivate each pupil.

A classification of interests that has been developed by the Educational Research and Guidance Section has six fields. The fields and typical activities which may be associated with them are as follows:

1. Aesthetic. Creating things of beauty. Working out ideas in accordance with the laws of art.
2. Commercial. Engaging in business activity. Providing or buying goods or services to sell at a profit.
3. Mechanical. Producing things with the aid of tools or machines. Using the laws of mechanics to develop power and save labor.
4. Natural. Developing or producing products of the earth found in fields, streams, seas, forests and rivers.
5. Scientific. Making use of exact thinking and scientific laws or facts to discover or utilize new materials, products and processes.
6. Social. Engaging in activities which seek to remedy or eliminate human discomfort. Working for the betterment of society.

Most human activities can be classified under one or more of the six fields. In guidance work such an outline is of value in determining interests and abilities with the aid of available objective measures. For example, if a boy shows a combined mechanical-scientific interest tendency on interest inventories, ability tests in the fields of mechanics and science can help to reveal whether the boy should plan to go to a trade school for advanced mechanical training or to a university for a higher scientific education.

The classroom teacher can have her share in the guidance program if in her daily work she reveals those basic drives which will aid in formulating a sound educational course for each student. Free reading activities offer an excellent opportunity for the discovery of interests and occupational orientation.

II. How Reading Matter Varies.
A. *Reading Comprehension Level.*

Books vary as to difficulty of comprehension. Two major factors which contribute to difficulty of comprehension are the author's style and the subject discussed. Some authors tend to use short, common words while others will employ the rarer synonyms with many syllables. Certain subjects are usually inherently easy, such as stories about animals, sports, and daily human activities. On the other hand, such subjects as international affairs, technical scientific discoveries and philosophy usually require a vocabulary made up of difficult, special meaning words. It will be seen that either author's style or subject matter or both together can have a very definite share in determining the comprehension level of the reading matter.

Some of our highest paid newspaper writers have the ability to write on difficult subjects in a popular manner. The late Will Rogers and Arthur Brisbane had this faculty. It is perhaps an art for writers to hold a wide range of readers with material covering an equally large range of topics.

In the past our secondary school texts were frequently written by well qualified

authorities who failed to use a style suited to the reading maturity of the average or below average high school student. Newer texts, even in the field of science, while remaining accurate, have been so modified in style that reading difficulty is not so much a problem as formerly.

A series of measures has been developed by the Educational Research and Guidance Section which gives an estimate of the vocabulary used in a given book. These measures are as follows:

1. Vocabulary Difficulty. This index shows the proportion of scientific or special meaning words used by an author.

2. Polysyllabic Words. The actual number of different polysyllabic words per thousand running words in an effective indicator of difficulty.

3. Vocabulary Diversity. In this case, the measure shows the proportion of words used by an author above the first five hundred words in frequency of use in the English language according to the best word counts.

4. Vocabulary Mass. Somewhat comparable to the measure above, this index gives a grade placement figure for the actual number of different words above the first 500 in frequency in a sampling of 1000 running words.

It will be seen that the first two measures are concerned with word difficulty, while the second two care for an element of style, i.e., the prolixity or verbosity of the writer.

All four measures are interpreted in terms of grade placement values which are based on reading comprehension test content.[2]

2The derivation of the formula is given on the "Word Tabulation Sheet" of the Vocabulary Grade Placement Formula, Educational Research and Guidance Section, Los Angeles City Schools.

With the aid of the formula, it is possible to select books with almost any style of vocabulary, according to the reading needs of pupils.

B. *Vocabulary Interest.*

Books vary in interest from texts as "dry as dust" to novels alive with vivid and compelling descriptions. One of the main differences, outside of the plot, in the two types seems to be in the nature of the words used. The interesting book has relatively many image bearing or sensory impression words. Quantities of adjectives, adverbs and verbs are employed which awaken the imagination. The dry books, on the other hand, employ relatively few descriptive terms that have inherent descriptive value.

A fifth measure used by the Educational Research and Guidance Section of the Los Angeles City Schools is known as the Vocabulary Interest Rating. A book's vocabulary is checked against a Vocabulary Interest Word List and the percentage of interest words found per thousand running words is determined. This percentage is interpreted in terms of the percentages for a large number of unselected books. Books with a "Very Superior" rating, for example, would be equivalent to the highest seven per cent of unselected books with regard to percentage of interest words used. While this measure statistically is not as reliable as the other four mentioned above, the rating does give a teacher unfamiliar with a given book some idea as to its probable interest value to the pupil.

Since plot or subject matter is of importance in selecting reading materials, these aspects should receive due recognition. A young boy interested in aviation would be much more able to understand and enjoy *Air Workers* by Alice V. Keliher than some more advanced book on aviation designed for adult use.

Lists of books which have been evaluated by means of the several measures of the Vocabulary Grade Placement Formula have been prepared for use by schools in the Los Angeles area.[3] In addition to the grade placement values the interest rating and classification are given for each book. Those books that are particularly useful with slow readers in junior high school have been starred.

III. SUGGESTED PROCEDURE FOR SELECTING BOOKS FOR CLASSROOM USE.

A. *Considering Individual Requirements.*

If possible, a teacher should have both intelligence test and reading test data for each pupil. An expected reading age may be secured by the use of the Horn formula of

$$X.A. = \frac{2 \text{ M.A.} + \text{C.A.}}{3}.$$

If this is not feasible, a rough approximation may be secured by finding the point half way between a given pupil's metal age and chronological age. Thus, if a seventh grade pupil's mental age is 178 months and his chronological age is 148 months an approximation of his Expectancy Age would be 163 months or about low eighth grade.

If on a reading test, this same pupil had a reading grade placement of 9.2, it would mean that he was doing exceptionally well, and that probably he would need reading materials suited to his social maturity which also would have sufficient style and thought-provoking content to prove stimulating to him.

Interests would need to be considered very definitely in the case of the boy just discussed since he has an intelligence quotient of about 120. Such a boy, no doubt, would be capable of some sort of

3"Books Evaluated by Means of the Vocabulary Grade Placement Formula, Revised to March, 1937." Los Angeles City School District, 74 pages.
"Textbooks and Instructional Materials Evaluated, 1938." Los Angeles County Superintendent of Schools, Division of Administrative Research, 51 pages.

professional or technical work. His reading, consequently, should have the purpose of broadening his understandings and appreciations. The use of some kind of interest measure which would reveal the range of possibilities in reading perhaps would help open up to him new fields of exploration by way of good biography or non-fiction.

If books have been well classified as to difficulty, interest value and subject, then it is a comparatively easy matter to match appropriate titles with the reading ability, social maturity and interests of individual pupils.

B. *Considering Probable Progress of Pupils.*

Since mental growth limitations, to a certain extent, determine the appropriate educational program so will it help decide reading needs. The old, dull child, for example, will not ordinarily attain a large vocabulary of special meaning words. In his reading, it will probably help him most to increase his vocabulary horizontally rather than vertically. He will gain more by having a better understanding of the meaning of words in the mother tongue. Books with low grade placements for Vocabulary Difficulty and Polysyllabic Words and with relatively high grade placements for Vocabulary Diversity and Vocabulary Mass will furnish the above pupil with material using many comparatively simple words. The young, dull child will need books in which all measures are low. On the other hand, older, bright students should be able to profit from books in which all measures are relatively high.

C. *Guidance Value of Reading Materials.*

There are a number of aids available to teachers who wish to recommend books to pupils on the basis of interests objectively determined. Among such

helps can be mentioned: *Vocations in Biography* by Norma O. Ireland, *Biography in Collections Suitable for Junior and Senior High Schools* by Hannah Logosa, and *Vocations in Fiction* by M. R. Lingenfelter and M. A. Hanson. These books have well classified lists of titles which offer a teacher a wide range of selection. Since it is becoming more and more difficult for the student to personally see how our industrial and commercial world is operated this understanding increasingly must come by way of his reading experience.

GROWTH IN READING IN AN INTEGRATED CURRICULUM

curiosity or getting pleasure or reading for fun, rather than in terms of specific questions to be answered.

To summarize, therefore, reading in an integrative curriculum is treated as an essential part of the total learning program. It is directed and adapted to the interests of the children on the basis of whatever maturity levels may be present. It is treated as an on-going process that should eventuate into an activity for mastering one's own limitations and extending one's own experiences within many realms of human achievement.

TEACHING CHILDREN TO READ

We are inclined to believe that this early instruction has little bearing upon the spurts for the following reasons: First, as you have seen, few words are acquired. Second, a study of these words reveals no similarity of words or parts of words from which the child can derive phonetic rules. Third, spurts are not related to special helps given inside or outside the school or to reading materials. Of course, we can only prove the validity of this belief through experimentation. There is sufficient evidence here, however, to indicate that if we can adjust the beginning reading program to these periods of awakening, we shall have a program of beginning reading that parallels beginning talking to a very high degree.

A PHONICS MANUAL

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(To be continued)

Vocabulary Problems in the Elementary School

A Digest of Current Research

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In order that readers may have the bibliography for reference in succeeding installments, it is published as the first installment.

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(This item is out of place in this bibliography because the committee could not secure the book in time to include it in the original copy, and to place it in its proper alphabetical position would necessitate changing all serial numbers in the bibliography. This was impossible.)

Editorial
Each To Its Own Purpose

IN A RECENT ADDRESS before The National Conference on Research in English, Dr. Thomas A. Knott, Editor-in-Chief of Webster's New International Dictionary, Second Edition, characterized this as a "book-and-school civilization." He went on to say: "Man invented many fundamental things earlier than movable type, but nothing else that was followed by such swift and stupendous consequences."

In such a civilization the importance of reading can hardly be over-emphasized. Literally everybody with enough wit to go about the streets without a guardian must know how to read. THE REVIEW feels justified, therefore, in devoting one of its eight numbers each year to this subject.

Articles in this number indicate a new and different interest in reading. It is an interest in the promotion of normal growth in reading as distinct from the remedial and preventive measures which have aroused such keen interest during the last three or four years. This aspect of reading was suggested by Dr. William S. Gray as the theme of the joint meeting of The National Conference on Research in English and the Department of Classroom Teachers in Cleveland on February 27. All the papers in this issue of THE REVIEW reflect this viewpoint to some extent, and all show fresh, vigorous thought and careful organization of methods.

It would be comforting if, from this, we could derive the hope that in the supremely important subject of reading, at least, education has its feet firmly on the ground, and its eyes wide open. The articles in this number offer some such happy promise.

However, those of us who have watched education mount one hobby after another, jumping hurdles and barriers until the mounts were exhausted and the quarry lost, then, leaving the same old obstacles in the path, mounting another sound theory and riding it to ruin—we are inclined to look with skeptical and sorrowful eyes at the courageous, painstaking work that is being done to improve reading.

Will this research be put to the uses for which it is intended and *to those uses only?* Or will it be made another hobby? Will the excellent school organization described by Dr. Oberholtzer be used soberly and carefully as it deserves to be? Will the ingenious classroom devices for vocabulary enlargement described by Dr. Osburn be used for vocabulary enlargement, or will they be distorted to serve purposes for which they were never intended? Will the brilliant results of Dr. Lewerenz's studies be used to stimulate pupils to reach the highest reading attainment of which they are capable, or will some zealot apply the formulas to debase literary classics?

Educators, no less than scientists, philosophers, and theologians, have always been harrassed by the possibility of the hurtful misuse of the knowledge they set forth.

In the present instance, the formulas and practices, correctly applied, hold the possibility of such great benefit, in a subject so widely important, that all of us, each individual reader, must bend his efforts to applying them to their intended purposes, and to those only.

Reviews and Abstracts

Reading Readiness. M. Lucille Harrison. Houghton Mifflin Company, 1936. 166 pages. $1.20.

This book on reading readiness is a valuable contribution to primary education because it is a practical study of the major problems involved. The organization of the book is excellent,—the major chapters covering "Factors Influencing Reading Readiness," "Instruction Fostering Reading Readiness," "The Test Program," and "Placement and the Remedial Program."

Emphasis is placed on educational guidance based on individual developmental data. The reader soon becomes aware of the many facets of the reading readiness problem—the mental, the emotional, and the physical. To ignore or to overemphasize any one phase will result in an unbalanced program.

Statements made regarding "dominance" need further appraisal because no distinction is made between peripheral and central aspects of laterality. Furthermore, an unusual statement was made regarding the possibility "of changing eye dominance." This aspect of the problem can be overemphasized.

The discussion of physical factors was limited largely to vision and hearing. Since the publication of this book, instruments have been marketed for the detection of hearing impairments which may have a greater bearing on learning difficulties. In addition, the relationship of nutritional deficiencies and glandular dysfunctions to school adjustment should receive attention. The author, however, further developed the concept of physical readiness for learning activities.

The author justifiably emphasized that "reading is primarily an intellectual process" and that the teacher has very definite "instructional jobs" during the preparatory period. She might have added that readiness for reading activities is an essential factor in learning activities at all school levels.

The book includes many features which should be appreciated by teachers and supervisors. First, there is a practical listing of means for detecting reading readiness deficiencies and of suggestions for guidance. In the writer's judgment, more emphasis should have been placed on first-teaching or prevention and less on "Remedial Measures." Second, the advantages and limitations of certain reading readiness tests are stated. Third, the professional bibliography (Appendix A) has been carefully selected. Fourth, a list of recommended books for the children's library is presented in Appendix B. These features, coupled with discussions, make an excellent handbook for teachers and clinicians.

One of the chief outcomes from reading this book should be an awareness of the wide range of individual differences presented to kindergarten and primary teachers. Although no mention was made of the different types of reading programs for which a given child is often expected to be ready, there is the implication that not every child is prepared for the same reading activities. Furthermore, not all pupils progress at the same rate. Hence, the prevention of reading difficulties can be achieved in a large measure by defining the needs of individual pupils and by providing instruction differentiated in terms of their needs.

The reviewer has found this book challenging for both graduate and undergraduate students.

—*EMMETT ALBERT BETTS*

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Director of Reading Clinic
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State College, Penn.

SHOP TALK

New Publishing Firm

A new educational publishing firm, Harrison and Company of Columbus, Ohio, has just made its bow. The executives of the company—O. Dee Harrison and John W. Swartz—are both well known to school people.

The new firm plans to publish workbooks and individualized study materials with a distinctive type of organization. It announces the publication of *Senior Spelling* and *Junior Spelling* by Professor W. S. Guiler of Miami University, Oxford, Ohio, and of *How to Land a Job and Get Ahead,* a timely and interesting case study of value in pupil guidance. This was prepared by Dr. E. E. Lewis, of Ohio State University.

Other publications to follow include elementary English workbooks for grades one to eight, inclusive.

Address inquiries to 3240 A. I. U. Building. Columbus, Ohio.

Pamphlets on Sight-Saving

Two recent bulletins offered by the National Society for the Prevention of Blindness are "Eye Health in Teacher Education," (Publication 282) and "Vocational Guidance for Sight-Saving Classes," (Publication 284). Both are reprints from *The Sight-Saving Review.* They may be purchased for five cents each from the office of the Society, 50 West 50th Street, New York City.